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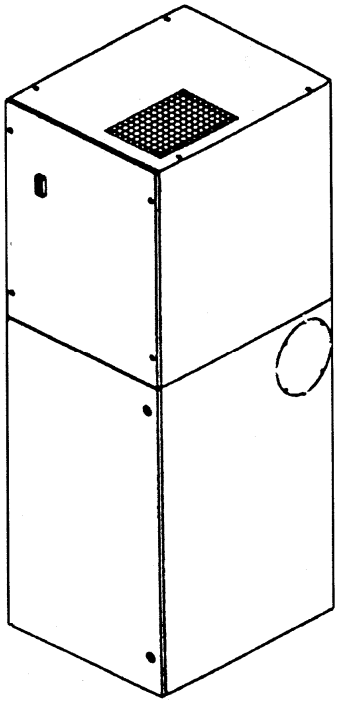
VS-1200 / VS-1500



Dust collector

User manual

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Preface

This manual describes the installation and usage of VS-type dust collectors.
Read through the entire manual before installing and commissioning the product.
Follow the instructions set out in this manual to ensure proper operation of the product and to retain your entitlement under the guarantee.
The terms of the guarantee are set out in the SIMCO (Nederland) B.V. General Terms and Conditions of Sale.

Explanation of symbols

Warning
Refers to special information for preventing injury or significant damage to the product or the environment

Note
Important information for making the most efficient use of the product or for preventing damage to the product or the environment

1 Introduction

The VS-type dust collector can be used for extracting dry and non-flammable substances. The VS-type dust collector effectively filters the air using a special filter element. The filter element is automatically cleaned when the device is switched off. All models feature sound insulation inside the blowing section of the housing.

1. Fan
2. Vibrating device
3. Air inlet
4. Inlet plate
5. Air outlet
6. Vibrating motor
7. Filter element
8. Dust drawer

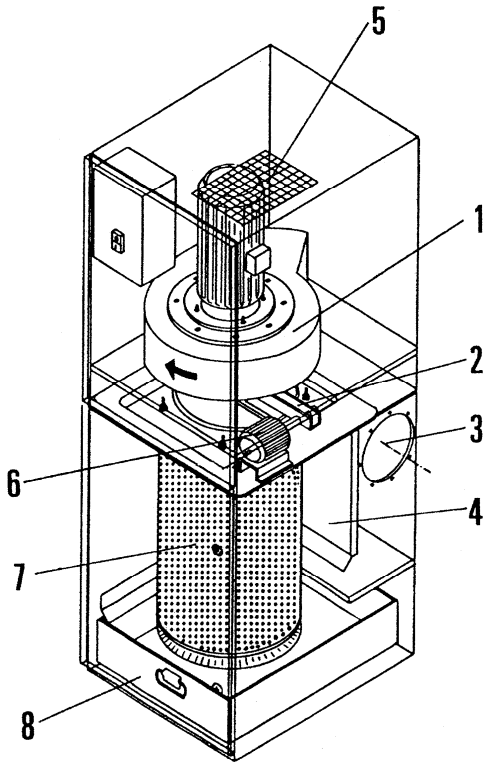

Figure 1. Components of the VS-type dust collector

2 Use and operation

2.1 Normal operation (Figure 2)

The dust is drawn in via the inlet (4) and then passes along the built-in pre-collector. In this way, the majority of the collected dust falls into the extendible drawer.
A filter cloth on the outside of the filter element (5) collects the fibrous dust, while the smaller particles are collected by the filter cartridge within the filter element. The clean air successively passes through the filter cartridge and the fan (3), through the sound-insulated section (2) and finally escapes via the air outlet (1).

1. Filtered air outlet
2. Sound-insulated section
3. Fan
4. Polluted air inlet
5. Filter element

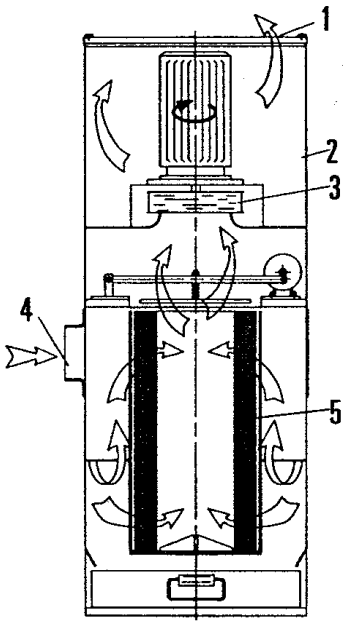

Figure 2. Schematic representation of the operation of the dust collector

2.2 Cleaning the filter

VS-type dust collectors are intended for non-continuous use. The filter is only cleaned when the fan is switched off and remains inactive for a further 40 seconds. The filter element is cleaned using high-frequency vibrations; this takes a preset time (30 seconds). During cleaning, the dust in the filter is shaken. After the fan is switched off, the diaphragm at the bottom of the filter opens, letting out the dust particles that have collected on the filter element. The dust falls into the dust drawer or into the funnel (optional) and can then be removed.
The cleaning mechanism only works if the dust collector remains connected to the mains voltage.

3 Safety

- Do not use the dust collector to extract explosive dust (or gases) or for agricultural food products that are reused.
- The dust collector is intended only for extracting dry and non-flammable substances.
- When working on the equipment, always disconnect the power supply to the equipment.
- Electrical installation must be performed according to the applicable national and local regulations.
- Electrical installation, maintenance and repairs must be carried out by a skilled electrical engineer with the relevant training and qualifications.
- In accordance with standard EN60204-1 (Safety of Machinery), a manually-operated interrupter must be incorporated into the installation to disconnect the power supply.
- If any modifications or adjustments etc. have been made without prior written consent, or if non-original parts have been used for repairs, CE approval for the equipment will be withdrawn and the equipment will no longer be under guarantee.

Using the equipment for purposes other than those stated above is considered to be in conflict with the purpose for which the equipment is intended. Simco (Nederland) B.V. accepts no liability whatsoever for damage arising from such use. The user bears full responsibility for all risks associated with improper use.

4 Technical specifications

	VS-1200	VS-1500
Connected loads	see type plate	see type plate
Fan motor power	2.2 kW	3 kW
Vibrating motor power	0.18 kW	0.18 kW
Sealing	IP-54	IP-54
Electrical safety	Class F	Class F
Noise level at 1 metre distance	72 dB(A)	74 dB(A)
Air inlet	ø150 mm	ø180 mm
Weight	175 kg	200 kg
Ambient temperature	Max. 40°C	Max. 40°C

5 Installation

5.1 Checks

- Check that the dust collector is undamaged and that you have received the correct version.
- Check that the details on the packing slip correspond to the details shown on the product received.

If you have any problems and/or doubts, please contact Simco or the agent in your region.

5.2 Positioning the dust collector

A solid and level surface is required for positioning the dust collector. When making a foundation, you should allow for the weight of the dust collector and any options.
There must be sufficient space around the dust collector to allow it to be emptied and to perform maintenance operations. The space above the dust collector must be at least 30 cm, so that air can be blown out.
The air lines and electrical power line must be kept as short as possible.
Adhere to the applicable local regulations when collecting hazardous dust.

5.3 Air lines

☞ **Note:**

- **Keep the lines as short as possible.**
- **Flanges with different diameters are available for line connection. Use of larger flanges than indicated can cause overloading of the fan motor or dust deposits in the lines because a lower air speed is achieved.**

The line diameters must be selected in such a way that the air velocity required for the material to be extracted is achieved.

- Keep the air lines as short as possible.
- For bends, the radius must at least be twice the line diameter.
- For descending lines, the angle should not exceed 30°. T-connections must be avoided.
- Use tapping screws or rivets for joints. Tape the seams.

5.4 Electrical installation

Warning:

- **The electrical installation must be carried out by a skilled electrical engineer.**
- **Connect the dust collector in accordance with the applicable national and local regulations.**

In accordance with standard EN60204-1 (Safety of Machinery), a manually-operated interrupter must be incorporated into the installation to disconnect the power supply.

The dust collector comes with an approximately 6 metre long connecting cable and a 5-pin Euro plug (EN60309-2, 16 A) as standard.

- Insert the plug into the wall socket.

If a permanent connection is desired/required:

- Remove the Euro plug.
- Connect the dust collector in accordance with the applicable national and local regulations.

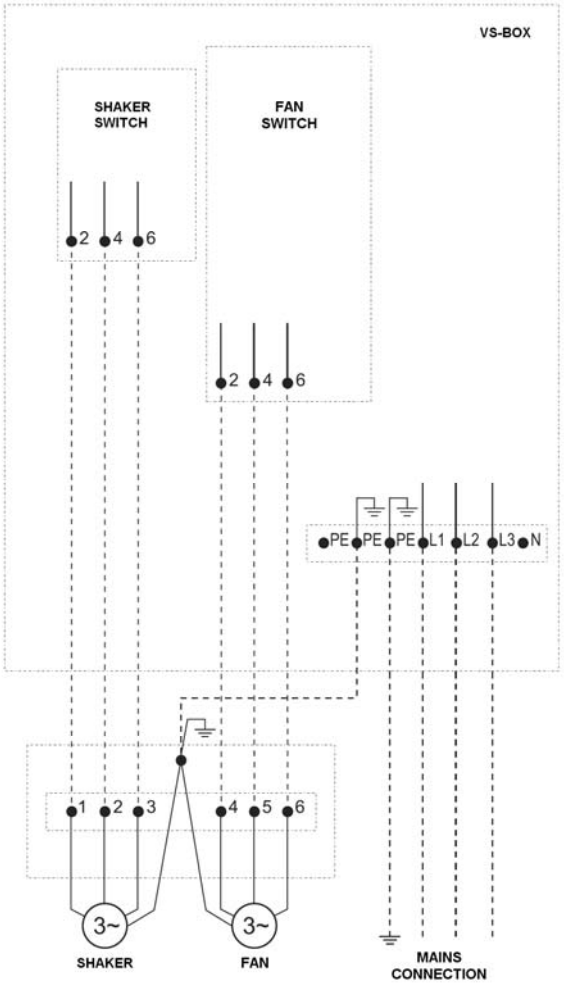

Figure 4. Connection diagram for the dust collector

Note:

- **If the connecting cable has to be extended or replaced, at least quality HO7RN F4G2.5 must be adhered to.**

5.5 Direction of rotation of the fan

The direction of rotation of the fan is shown by an arrow on the fan housing. The direction of rotation of the fan is also shown in the top of the air outlet on the dust collector. The direction of rotation of the fan is indicated by an arrow and must be clockwise.

Warning:

- **When working on the equipment, always disconnect the power supply to the equipment.**

- Switch the dust collector on and immediately off again.
- Check the direction of rotation.
- If the direction of rotation is incorrect (anticlockwise), interchange two phases in the terminals L1, L2, L3, or in the mains connection.

Note:

- **It is essential that the direction of rotation of the fan is correct. If the direction of rotation of the fan is incorrect, it will only supply approx. 40% of its intended air volume.**

6 Options

6.1 Differential pressure switch

If the differential pressure above the filter gets too high, the differential pressure switch is activated. The dust collector then switches off. Once the fan has stopped, cleaning by vibration is started. The user can opt for a manual restart or an automatic restart of the dust collector depending on the position of function switch 2 in the control unit (see Figure 6). When set to automatic restart (pos. 1), the dust collector automatically restarts after the cleaning cycle. When set to manual restart (pos. 0), the dust collector has to be restarted manually after the cleaning cycle.
The differential pressure switch is connected to terminals 9 and 11 (see Figure 5).

6.2 External start/stop

The fan can be started and stopped using external switches.
The switches are connected to terminals 6, 7 and 8 (see Figure 5).

6.3 Emergency stop

The emergency stop switch can be connected to terminals 15 and 16 (see Figure 5).
To do this, remove the interconnection between the terminals and replace this with the switch.
When the switch is open, all power to the control unit is switched off and the dust collector will stop. All time intervals will be reset. Closing the switch returns the control unit to stand-by state.

6.4 External start — single contact

The dust collector can be started with a single contact that is connected to terminals 9 and 10 (see Figure 5).

6.5 Timer-controlled filter cleaning

The cleaning cycle is started periodically via a time relay. The time interval can be changed using the time relay. The dust collector switches off when the time relay switches. Once the fan has stopped, cleaning by vibration is started. The user can opt for a manual restart or an automatic restart of the dust collector depending on the position of function switch 2 in the control unit (see Figure 6). When set to automatic restart (pos. 1), the dust collector automatically restarts after the cleaning cycle. When set to manual restart (pos. 0), the dust collector has to be restarted manually after the cleaning cycle. The time relay contact is connected to terminals 9 and 11 (see Figure 5).

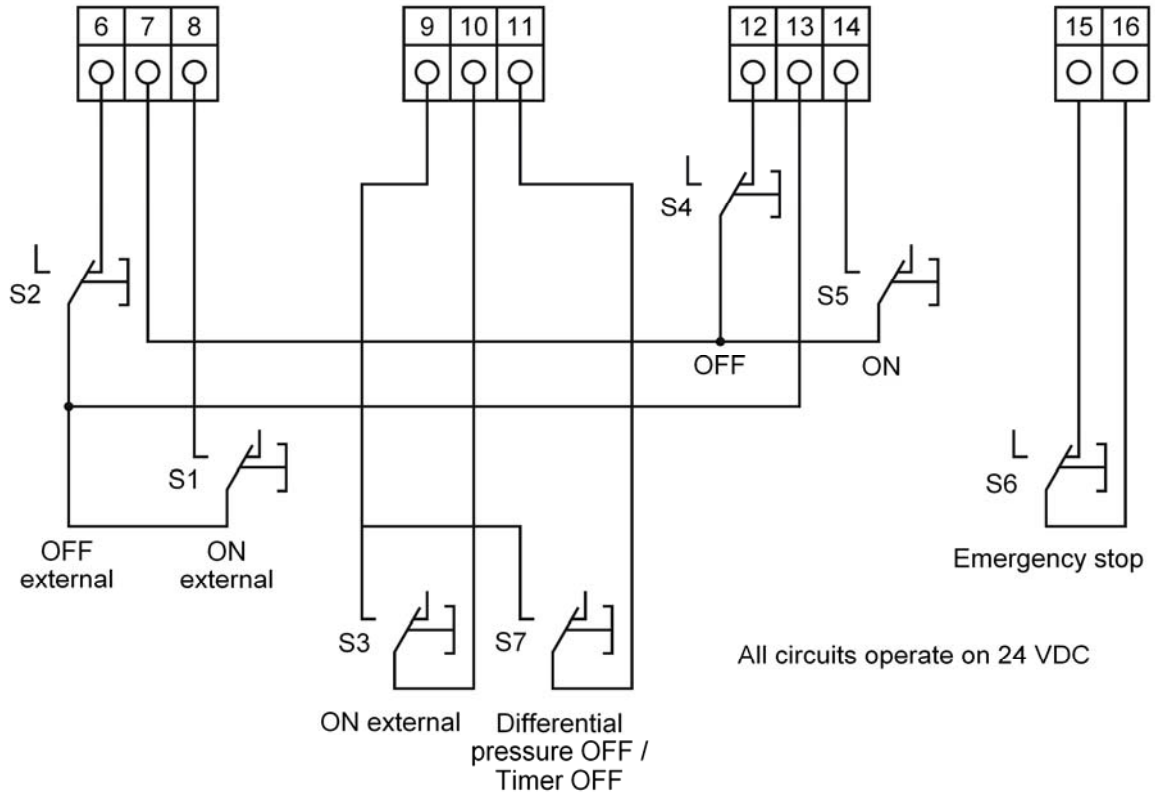

Figure 5. Connections on the control unit

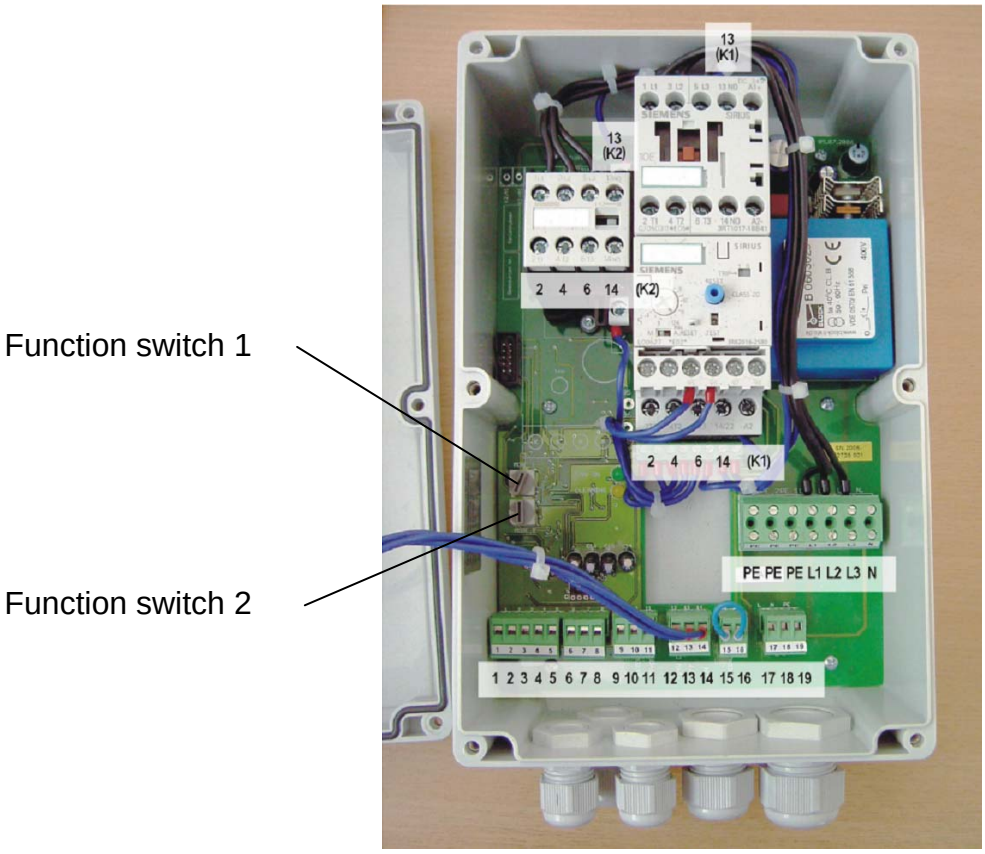

Figure 6. Control unit

7 Operation

7.1 Switching on

- Check that the air outlet on the top of the dust collector is not blocked.
- Connect the dust collector to the mains voltage.
- Press the green button [ON].

7.2 Switching off

- Press the red button [OFF].

Once the fan has completely stopped (after approx. 40 seconds), the filter cleaning cycle starts automatically. The off-cycle ends after the filter has been cleaned.

7.3 Filter cleaning

- Switch off the device by pressing the red button [OFF].
- Once the fan has stopped (after approx. 40 seconds), the filter cleaning cycle starts automatically.
- Restart the dust collector by pressing the green button [ON] as soon as the cleaning cycle has finished.

N.B. Filter cleaning can only be started if the fan has been running for at least 30 seconds. A "fail-safe" circuit ensures that if there is a power failure, the cleaning cycle is not resumed once mains power is restored. The control unit enters stand-by state for a restart of the fan.

☞ **Note:**

- **During filter cleaning, there must be mains voltage to the dust collector. If the mains voltage is switched off, cleaning by vibration is no longer possible.**
- **During the cleaning cycle it is temporarily not possible to extract dust (for around 1 – 3 minutes).**
- **The fan can be restarted during the delay time but not during the cleaning time.**

8 **Accessories** (available as options)

8.1	Filter pressure drop gauge	8.2	Blow-out filter (absolute filter)
8.3	Castors	8.4	Anti-return baffle

8.1 Filter pressure drop gauge

The filter pressure drop gauge can be used to get an indication of the filter contamination. The greater the contamination, the higher the reading on the filter pressure drop gauge.
Fitting:

- Determine the gauge mounting position on one of the side walls at the level of the vibrating motor (see Figure 9).
- Mark off the fixing holes for the bracket on the dust collector.
- Drill 4 mm holes at these points.
- Drill the holes for the air connections as close as possible to the point where the gauge will be fitted (see drawing).
  A, connection for contaminated air: drill a hole between the filter and the inlet plate
  B, connection for clean air: drill a hole between the top of the filter and fan.
- Attach the air connections in the drilled holes.
- Fit the gauge in the bracket.
- Connect flexible hose of sufficient length to the gauge connection points.
- Fit the bracket with gauge to the dust collector using the 4 screws supplied.
- Join the gauge hoses to the air connections on the dust collector.
  Connection "high" on the gauge: connection A.
  Connection "low" on the gauge: connection B.

☞ **Note:**

- **The joints must be airtight.**

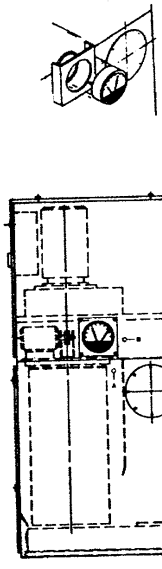

Figure 9. Fitting the filter pressure drop gauge

Fig. 9

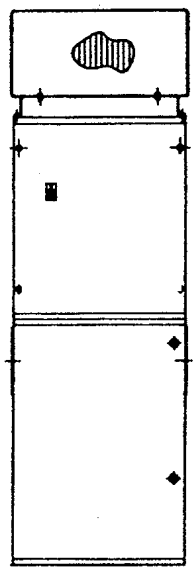

Figure 10. Fitting the absolute filter

Fig. 10

8.2 Blow-out filter for clean air (absolute filter)

An extra filter on the blow-out opening of the dust collector ensures that any very small dust particles that have passed through the standard filter are removed from the blown out air.
Fitting:
- Loosen the 4 top plate screws.
- Remove the top plate.
- Apply sealant to the frame edge.
- Place the filter on the dust collector.
- Secure the filter using the 4 top plate screws.

☞ **Note**
- **The free space above the filter must be at least 30 cm.**

8.5 Castors

In order to facilitate moving the dust collector, it can be fitted with a base frame and castors.
Fitting:
- Remove the dust drawer from the dust collector.
- Drill out the rivets securing the base plate using a 10 mm drill.
- Place the dust collector on the frame so that the 2 castors are located at the front of the dust collector.
- Fit the dust collector to the frame, using the 4 supplied bolts.
- Replace the dust drawer.

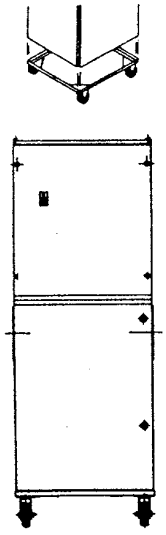

Figure 11. Fitting the castors

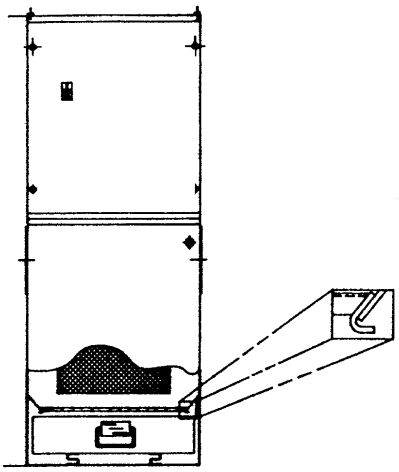

Figure 12. Fitting the anti-return baffle

8.4 Anti-return baffle

Fitting:
Position the anti-return baffle in the correct position as indicated in Figure 12.

9 Maintenance

Warning:

- **When working on the equipment, always disconnect the power supply to the equipment.**

9.1 Daily maintenance

9.1.1 Emptying the dust collector

Standard model:

Empty the dust drawer regularly and whenever it is 2/3 full.

- Switch off the dust collector.
- Open the door at the bottom of the dust collector using a square spanner or screwdriver.
- Remove the dust drawer from the dust collector.
- Empty the dust drawer.
- Remove any dust from the bottom or elsewhere in the compartment.
- Replace the dust drawer in the dust collector.
- Close the door.

For models with funnel and collecting tank:

Empty the collecting tank regularly and whenever it is 2/3 full.

- Switch off the dust collector.
- Open the door at the bottom of the dust collector using a square spanner or screwdriver.
- Loosen the connection between the funnel and the collector (grips backwards).
- Remove the collecting tank from the dust collector.
- Empty the collecting tank.
- Remove any dust on/in the funnel or elsewhere in the compartment.
- Replace the collecting tank in the dust collector.
- Secure the collecting tank to the funnel (grips forwards).
- Close the door.

Note:

- **Check that the connection between the collecting tank and the funnel is airtight.**

9.1.2 Cleaning the filter element

If the filter cloth around the filter becomes blocked with fibres, it can be removed and cleaned. Velcro is used to attach the filter cloth to the seams.

- Detach the filter cloth at the Velcro seam.
- Remove the filter cloth.
- Clean the filter cloth.
- Fit the clean filter cloth around the filter (the filter cloth must be located at the very top of the filter element and cover all perforations in the filter element).
- Pull the filter cloth tightly around the filter element and press the Velcro seams together.

Note:

- **The filter cloth must sit tightly around the filter element to prevent it from sliding down during cleaning by vibration.**

In order to clean the filter cloth, the filter element can be removed. See section 9.2 Periodic maintenance, Filter element replacement.

9.2 Periodic maintenance

Warning:

- **When working on the equipment, always disconnect the power supply to the equipment.**
- **Maintenance must be undertaken by a trained person.**

9.2.1 Replacing the filter element

Note

- **Take care not to drop the filter element when loosening and removing it. The filter element may be heavy due to the collected dust.**

1. Vibrating panel
2. Door
3. Filter element
4. Fastening ring

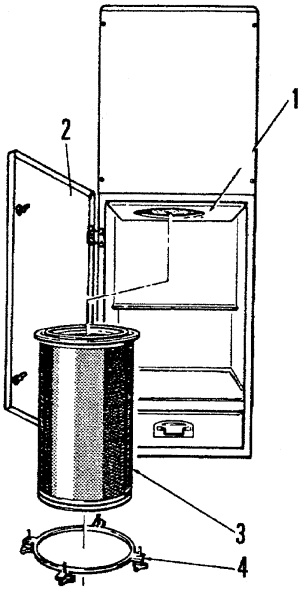

Figure 13. Filter element replacement

- Open the door at the bottom of the dust collector using a square spanner or screwdriver.
- Remove the dust drawer from the dust collector.
- Loosen (but do not remove) the fastening screws (4 star-head screws).
- Rotate the fastening ring approx. 10° anticlockwise. Be careful of the weight of the filter element.
- Remove the fastening ring with filter element from the dust collector.
- Check whether there is dust on the vibrating panel sealing. Clean, if necessary.
- Position the fastening ring around the new filter element.
- Position the filter element with fastening ring in the dust collector.
- Raise the fastening ring with filter element against the vibrating panel and turn the fastening ring clockwise until it is supported by the fastening bolts.
- Tighten the fastening bolts.
- Detach the diaphragm valve from the underside of the filter element.
- Check the door gasket for damage. Repair or replace the gasket if it is damaged and no longer airtight.
- Close the door with the square spanner or screwdriver.

Note:

- **A new filter element may initially let through a little dust, as it needs to be "run in". If the filter continues to let dust through, contact Simco or the agent in your region.**

9.3 Checking the adjustment of the vibrating ring

With the vibrating lever in its lowest position (dead centre), there must be a free space of 3 mm between the edge of the filter element and the vibrating ring above it. That has already been set by the supplier.

1. Vibrating motor

2. Bottom dead centre

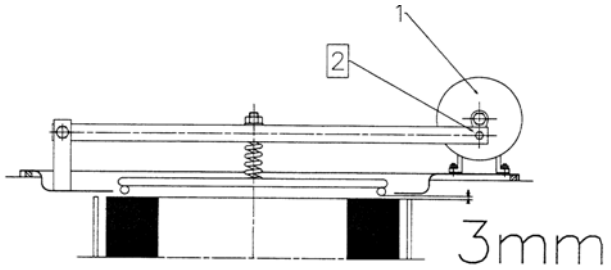

Figure 3. Vibrating ring adjustment

10 Faults

Table 1: Faults

Problem	Cause	Solution
Dust collector does not start	Dust collector not connected to (mains) voltage	Connect dust collector to (mains) voltage
	(Mains) connection interrupted	Check connections, remedy interruption
	(Mains) voltage on 2 phases only	Restore (mains) voltage on third phase
	Defective fuse(s)	Replace fuse(s)
	Fan motor switched off by thermal overload protection	Switch on thermal overload protection
Fan motor does not come up to speed. Motor gets hot	(Mains) voltage on 2 phases only	Restore (mains) voltage on third phase
	Motor switched off by thermal overload protection	Remove the overload Reset thermal overload protection switch
	System blocked	Unblock
Motor for cleaning by vibration does not function	Voltage on vibrating motor interrupted	Check connections, restore if necessary
	Vibrating motor switched off by thermal overload protection	Switch on thermal overload protection
Insufficient suction	Fan operating in wrong direction	Interchange 2 phases in connection
	Leakage in line system	Seal any leaks
	Door not closed properly	Close door properly
	Filter clogged	Clean filter
	Air outlet blocked	Clear the air outlet
	Line system blocked	Unblock

11 Repair

Warning:

- **When working on the equipment, always disconnect the power supply to the equipment.**
- **Repairs must be carried out by a skilled electrical engineer.**

If replacement parts are needed for repairs: contact Simco or the agent in your region. When ordering parts, please state the model of the dust collector and the part number, description of the part and quantity required.
If the dust collector has to be returned to SIMCO for repair, send an e-mail to service@simco.nl to request an RMA form.

12 Disposal

Adhere to the applicable local environmental and other regulations when disposing of the equipment.

Spare parts

Part number	Description	Pos.
7499905200	Filter cloth VS-1200	(1)
7499905300	Filter cloth VS-1500	(1)
7499901200	Filter element VS-1200	(2)
7499901500	Filter element VS-1500	(2)
7499900100	Vibrating motor connection, nylon	(10)
7499990115	Vibrating lever	(6)
7499990120	Shoulder bolt	(7)
7499990125	Split pin, stainless steel	(9)
7499990130	Spring for vibrating system	(8)

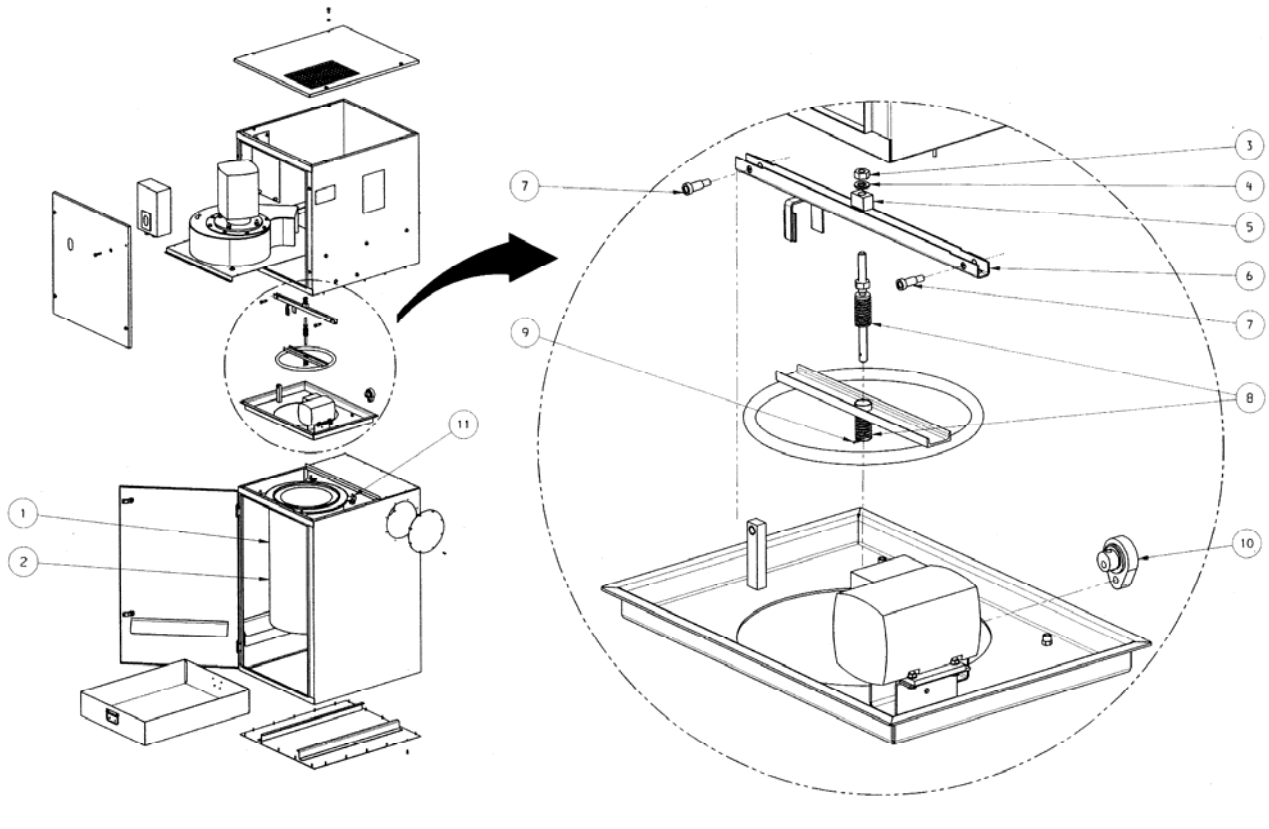

Figure 14. Parts drawing

Spare parts can be obtained from the agent in your region or from Simco (Nederland) B.V.

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7240 AB Lochem, The Netherlands
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